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ABSTRACT

Although a number of studies have related personality traits to overall college achievement, little has been done to analyze academic achievement in terms of its cognitive level components and relate these components to personality variables and academic success. Personality characteristics, cognitive levels of functioning and grade point average were compared for a sample of 114 junior college students. Personality characteristics proved to be differentially associated with cognitive levels and grades. The most compelling results were the consistent association of autonomy with all cognitive levels, and the observation that a high religious orientation was negatively associated with classroom achievement. Although the analysis of academic achievement into levels of thought did not increase the correlations between personality and academic achievement beyond those usually reported, future studies should include an examination of the cognitive processes underlying achievement. (Author/JAC)

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PERSONALITY CHARACTERISTICS, LEVELS OF COGNITION, AND ACADEMIC ACHIEVEMENT OF JUNIOR COLLEGE STUDENTS

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PERSONALITY CHARACTERISTICS

Capsule Statement

This study compared personality characteristics, cognitive levels of functioning, and GPA of junior college students. The most compelling results were the consistent association of the trait Autonomy with all cognitive levels, the finding that only 6 of the 14 OPI scales related to cognitive skills, and the observation that a high Religious Orientation was negatively associated with achievement in introductory psychology.

Personality Characteristics, levels of Cognition, and Academic Achievement of Junior College Students

Although a number of studies have related personality characteristics to overall college achievement (for example, Cross and Allen, 1970; McClelland, 1953; Spielberger, 1962), little work has been done to analyze academic achievement into its cognitive level components as hypothesized by Bloom (1956), and to relate these to personality variables and academic success. This study seeks to investigate levels of cognition considered by Bloom to be most critical for academic success as these may interact and relate to personality characteristics and school success.

It is hoped that such a focus might shed new light on the relationship between personality and achievement as well as increase the modest associations usually reported between these variables (Ayers and Rohr, 1972; Dessent and Bryant, 1967; Massari and Rosenblum, 1972; and Muchinsky and Hoyt, 1972).

The instruments used were the Omnibus Personality Inventory (Form F) (OPI) (Heist, 1968) and the Mentrex System of Assessment for introductory psychology (Libaw and Kirschenbaum, 1970). The OPI consists of 14 scales designed to measure emotional academic feelings and behavior. The Mentrex System consists of six scales based upon Bloom's taxonomy and representing in

ascending order of complexity, Memorization, Comprehension, Application, Analysis, Synthesis, and Evaluation. Items representing these were presented in multiple choice format, and keyed to an introductory course in psychology.

Subjects

Ss consisted of 114 (56 male, 58 female community college students enrolled in a course in Introductory Psychology. The OPI was administered upon class entrance. Four Mentrex examinations were administered over a 20 week period, and, when summed, constituted the formal assessment procedures upon which grading was based. Product-moment correlation coefficients were computed among all possible pairings of the 14 OPI variables, 6 Mentrex cognitive level scores, the Mentrex total score, which represented the course grade, and the semester Grade Point Average (GPA) (minus the introductory psychology Mentrex grade).

Results

The six cognitive levels making up the Mentrex system related significantly and consistently to 6 of the 14 OPI scales, with more than half of the comparisons (20/36) reaching the .05 or .01 level.

Insert Table 1 about here

The cognitive levels in order of relationship to the six personality scales were Application, which significantly related to all six, Memorization which related to four, Synthesis and Comprehension which related to the same three scales, and Analysis and Evaluation, which related to two each. The introductory psychology course grade related to all six of the personality scales, with correlations uniformly surpassing the corresponding relationships between the college grade point average (excluding the Mentrex based grade) and the same personality scales.

Certain of the personality scales were more closely related to cognitive levels than others. Thus, Autonomy related significantly to all six levels, as well as course grade and GPA. Practical Outlook related (negatively) to four of the six levels as well as the class grade, but did not quite reach significance for the GPA.

Three other personality scales (Thinking Introversion, Response Bias, and Religious Orientation) related to three of the cognitive levels, and course grade, but only the first two of these also related significantly to GPA.

DISCUSSION

The consistent association of the personality trait of Autonomy with all six levels of cognition, as measured by Mentrex, plus the introductory psychology grade as well as the general

grade level (GPA), suggests that the characteristics Autonomy measures, i.e., liberal, non-authoritarian thinking, tolerance for diverse viewpoints, and independence from traditional authority, relate directly to all levels of simple and complex thought, and are reflected in success in an empirically oriented beginning psychology course, and overall college course achievement. Apparently the more successful community college students can be characterized as open and flexible, allowing them to adhere simultaneously to institutional standards for success (grades) while at the same time questioning the very structure of the institution in which they obtain that success. Perhaps students who describe themselves as liberal and non-authoritarian are flexible enough to imagine what might be, while living with what is.

The significant negative association between Practical Outlook and four of the six cognitive levels as well as the total score suggests that an excessively utilitarian approach to ideas may impede rote learning, understanding information, application of principles, the process of synthesization, and, in sum, success in an introductory psychology course applying these principles, but have much less effect on the GPA.

In contrast, Response Bias and Thinking Introversion related more to grades than to thinking styles, with only Memorization and Application characterizing both scales. Apparently

the need to make a good impression, to use a cautious, rational approach to problems, and to be receptive to new ideas, are factors in satisfying grade requirements.

The association between low Religious Orientation (the direction of this scale is reversed) and three of the six thought levels as well as the total, but NOT the GPA, suggests that the acceptance of conventional religious beliefs and practices interferes with the understanding of information, the application of appropriate principles, and the bringing together of unrelated facts for problem solving. In addition, the conservative, closed type of thought that might accompany a strong Religious Orientation may interfere with success in an empirically oriented psychology class.

The fact that Theoretical Orientation related only to the thinking style Application and to the introductory psychology course grade, but not to the GPA, suggests that a scientific-theoretical orientation is involved in applying principles and methods for problem solving, that such a focus does relate to success in a psychology course, yet, surprisingly, not to course work in general.

The finding that all six of the personality scales under consideration relate significantly to the psychology course grade, while only three (Autonomy, Thinking Introversion, and Response Bias) relate to GPA suggest that success in an empirical

oriented introductory psychology course, in contrast to success in other classes, requires a non-pragmatic outlook, skepticism of conventional religious beliefs and practices, and the possession of a scientific-theoretical orientation. Thus, students who do well in introductory psychology appear to be qualitatively different from those who do well in other classes. They tend to be liberal, theoretical, skeptical, non-religiously oriented individuals who enjoy being iconoclasts.

The association of the learning style Application with the six personality scales covered above, but never with any of the remaining eight OPI scales, could indicate that the students who are better able to apply appropriate principles and methods for problem solving enjoy questioning the experts and are not tied to tradition. In essence, those students who are most capable of using abstractions are not fearful of but, on the contrary, enjoy challenging the status quo.

The finding that the learning style Memorization, unlike Application, did not relate to low Religious Orientation and high Theoretical Orientation suggests that rote learning in comparison to the use of abstraction does not require an interest in the scientific method nor skepticism of religious beliefs. One might even hypothesize that skepticism of dogma and speculation about problems would actually interfere with rote learning, for these would impede the smooth ingestion of factual data. Furthermore, there seems to be a connection between the previously given

description of the personality characteristics related to the process of Application, achievement in introductory psychology, and the finding that six of the OPI scales related to cognitive skills while the other eight never even approached significance. Perhaps some degree of enjoyment of the unconventional, courage to reject accepted beliefs, and gratification in challening the "experts" is essential not only to the cognitive skill of Application, success in an introductory psychology course, but also to all levels of thought, simple and complex.

Summary

In summary, this study compared the personality characteristics, cognitive levels of functioning and GPA of 114 junior college students. Personality characteristics proved to be differentially associated with cognitive levels and grades. The most compelling results were the consistent association of the trait Autonomy with all cognitive levels, the findings that only six of the 14 OPI scales related to cognitive skills, and the observation that a high Religious Orientation was negatively associated with achievement in introductory psychology. Although the analyzing of academic achievement into levels of thought did not increase the correlations between personality and academic achievement beyond those usually reported, findings do suggest that future studies might be more fruitful if the cognitive processes underlying achievement were included as part of the examination.

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Table 1

CORRELATIONS BETWEEN COGNITIVE LEVELS AND PERSONALITY/ CHARACTERISTICS OF JUNIOR COLLEGE STUDENTS (N=114)

OPI	Mentrex Levels							
$^{x}p = .05$ $^{xx}p = .01$	Memorization	Comprehension	Application	Analysis	Synthesis	Evaluation	Total	GPA (other)
Autonomy	.27^{xx}	.23^{xx}	.35^{xx}	.19^{x}	.34^{xx}	.21^{x}	.33^{xx}	.20^{x}
Practical Outlet	-.26^{xx}	-.21^{x}	-.30^{xx}	-.17	-.26^{xx}	-.13	-.28^{xx}	-.17
Thinking Introversion	.18^{x}	.15	.18^{x}	.12	.14	.19^{x}	.47^{xx}	.27^{xx}
Response Bias	.18^{x}	.17	.18^{x}	.21^{x}	.14	.12	.21^{x}	.20^{x}
Religious Orientation	.14	.18^{x}	.22^{x}	.08	.20^{x}	.10	.19^{x}	-.05
Theoretical Orientation	.07	.12	.22^{x}	.14	.15	.14	.20^{x}	.09
Estheticism	-.04	-.08	-.07	-.02	-.10	-.05	-.07	.13
Complexity	-.02	-.02	-.02	.06	.02	-.14	-.02	-.05
Social Extroversion	-.06	-.06	-.11	-.09	-.10	-.06	-.10	.05
Impulse Expression	-.15	-.08	-.01	-.04	-.01	-.09	-.08	-.22^{x}
Personal Integration	.14	.07	.06	.07	.07	.03	.09	.17
Anxiety Level	.09	.07	.06	.06	-.01	-.06	.05	.03
Altruism	.11	.08	.07	.15	.05	.09	.12	.24^{xx}
Masculinity - Femininity	-.04	.10	.09	.05	.04	.10	.07	-.16